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AUTHOR	Pascal, C. E.; Geis, G. L.
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ABSTRACT

Comments and points representing "lore" rather than proven facts are presented in this outline to summarize some of the issues raised by critics and proponents of various methods of grading rather than presenting a summary of research. Pro and con arguments are those typically advanced by proponents or detractors and are not presented as facts. Descriptions, alleged benefits, and alleged defects are listed for: (1) traditional grading, (2) pass-fail grading, and (3) a mastery model of grading. Finally, principles of grading are suggested to which any grading system ought to adhere. (RC)

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AN OUTLINE OF METHODS OF GRADING STUDENT PERFORMANCE

C.E. Pascal and G.L. Geis

As long as teachers have been teaching and students have been learning, it has been the task of the former to grade, evaluate, or assess the performance of the latter. Grades are assigned for many reasons: They can provide feedback to the student on how he is progressing. Or grades may be seen as an important means of encouraging students to learn. Considering the students' whole career, perhaps the most important function of grades however, is as the basis for sorting and certifying. The teacher, by means of a grade, certifies that a student has performed at a certain level. Others (e.g., graduate schools or employers) often make decisions (e.g., accept or reject) on the basis of such data.

Few aspects of educational practice produce more interest, emotion and agitation among students and teachers; yet grading has received little attention from researchers. Consequently many of the comments or points that follow represent "lore" rather than proven fact; and the objective of this outline is to summarize some of the issues raised by critics and proponents of various methods of grading rather than to present a summary of research. Note that the pro and con arguments are those typically advanced by proponents or detractors and are not presented as facts.

I. Traditional Scheme

A. Description

1. "Scores" are in terms of A,B,C,D,E, or 100%, 85%, 70%, etc.

2. Often used in conjunction with a "curve" (certain predetermined percentages of students receive A's, B's, etc.).

3. Individual course grades are transposed into grade point average.

4. Used for sorting or selection as: entrance into other courses, honour systems, academic awards, graduate schools, and dropping students (for failing grades).

Drs. Pascal and Geis are members of CLD and Associate Professors of Education at McGill.

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B. Alleged Benefits

1. Grades are commonly used and therefore allow interchange of relatively standardized information about students between schools.

2. Grades help enforce academic discipline.

3. Grades serve numerous administrative purposes both within and without the grading institution.

4. Since scores based on a "curve" are competitive, they help prepare students for the competition of life.

5. Grades motivate students to work.

6. Grades are a fairly reliable and valid index of academic achievement.

C. Alleged Defects

1. Grades often are determined by irrelevant (e.g., attendance, sex, race, neatness) and subjective variables; they are often arbitrary, unreliable, and invalid.

2. Grades do not tell anyone (student, employer, etc.) specifically what the student has actually learned or not learned.

3. Grades are <u>not</u> standardized. Teachers and schools have unique applications of the grading scheme.

4. Grades as rewards promote grade-getting behaviour (e.g., cramming, cheating) not necessarily learning skills.

5. There is no evidence that grades are reliable predictors for graduate school success. Because "everyone else uses grades" is no reason to continue - someone has to take the lead and develop and use new methods of graduate school selection.

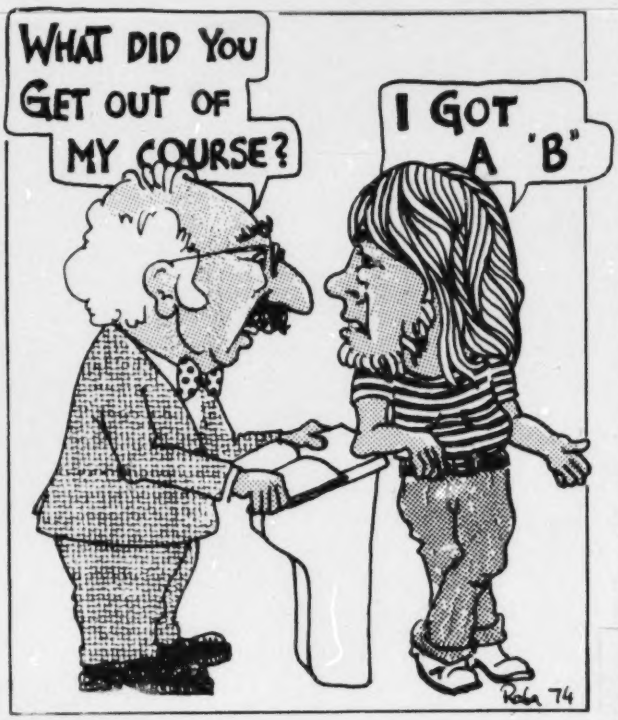
6. "Real Life" has no counterpart for which grades are an appropriate preparation. (When did you see a 78% written on the side of a doctor's little black bag?)

7. Grades inhibit creative, original student behaviour.

8. Use of a grading curve is inconsistent with policy of admissions department to increase "quality" of incoming students.

Note that some arguments are based on the assumption that grades are assigned using a curve. This "<u>norm-referenced</u>" method requires that all the scores be placed in a distribution curve and that, arbitrarily, a certain percentage of the students be assigned to each grade. Thus, the upper 10% of each year's class will always be assigned an "A". This means that an <u>A</u> student from one year is not strictly comparable to an <u>A</u> student from another year. Each represents only the best of that year's "crop".

Also, it is assumed, when criticizing the traditional system, that the criteria for each grade have not been spelled out. Thus an "A" does not indicate what or how much has been learned. Because of this grades are often not comparable from school to school or even teacher to teacher. Advanced placement, for example, often requires a special examination rather than being based on previous grade records.



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I. Pass-Fail Grading

A. Description

1. Number of symbols of student performance and reduced to two (p-f) sometimes three (Honours-Pass-Fail).

2. Most often Pass-Fail is used within context of traditional grading system.

3. Students usually elect individual courses on p-f basis.

4. Many p-f schemes have p-f students and graded students in same classes (often, teachers do not know which students have elected course on p-f basis; if student receives grade of "C" or better, registrar records a "pass"). Some schools have courses which are entirely pass-fail.

5. Some of the many variations of p-f systems:

a) Students can elect a certain percentage of courses each term on p-f basis.

b) Students can elect only courses outside major area for p-f.

c) Student can elect p-f in first two years only.

d) Students can elect p-f in last two years only.

e) All courses, in every year are entirely on p-f basis.

B. Alleged Benefits

1. The system reduces anxiety about grades.

2. It increases intrinsic motivation.

3. It encourages students to select courses in new areas without fear of losing grade points (p-f's not figured into grade point average.)

C. Alleged Defects

1. Many p-f systems operate with grades as determinants of whether student receives p or f (i.e., "C" or above = pass). Therefore, p-f is really no different than traditional system.

2. There is no evidence that students are taking courses they would not have taken without p-f option.

3. Students do not learn as much in p-f courses as they would if they were receiving grades.

4. Graduate schools do not "count" courses in pass-fail for admissions purposes.

5. Professors are loath to fail students - therefore, they are likely to pass even weak students in a p-f system. Thus student records allow for even less discrimination than when a grading system involving letters or percents is used.

III. Mastery Model of Grading

A. Description

Sometimes called "A-Incomplete," "Pass-Incomplete," or "Student-Contracting," it is often used with modular instruction or other forms of individual instruction. The method usually contains the following characteristics:

1. Students receive grade when they have successfully completed clearly stated objectives or assignments.

2. Unsatisfactory work is returned ("incomplete") with appropriate feedback from instructor and student revises until completely satisfactory.

B. Alleged Benefits

1. It is assumed that given appropriate students (students with proper prerequisite skills and knowledge) enough time, and the right mixture of learning

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options, all students are capable of achieving the course goals. The mastery model allows every student the chance to achieve competence in the subject matter.

2. This "method" eliminates failing.

3. The responsibility for learning is mutually the teacher's and the student's.

4. Grades represent specific learning outcomes (i.e. since this model is based on mastery of specific assignments, graduate schools or employers know what the student can do or what he knows by examining lists of mastered objectives).

C. Alleged Defects

1. The threat of failing under traditional system is motivating for students. Therefore motivation is reduced when grades are eliminated.

2. Not all students are capable of getting A's, at least given the learning resources available in most courses.

3. The mastery model involves not only a change in the grading system. It requires a very large investment of resources to get it going (e.g., preparation of packages of materials, extensive writing of objectives and tests, equally sizeable amount of resources is required to keep it going (e.g., marking each individual test, providing remedial work). No teacher has enough time to put such a system into effect (especially if one has three hundred students to teach).

4. The student, at least at the University level, ought not to be spoon-fed. The mastery model is a crutch for the weaker students.

Note that this model, as mentioned above, implies an overall approach to teaching as well as a method of marking. It also implies a very different concept of the distribution of "grades" from that implied by the traditional A-F method. Instead of being "norm-referenced" the Pass-Incomplete model is criterion-referenced. The student is pitted not against other students but against a standard of excellence - a criterion. If criteria are spelled out in detail for each small unit of instruction, the students' test profile is extremely informative. It tells the observer precisely what the student has and has not accomplished.

Now What?

Any grading system ought to adhere to these two principles:

- THE GRADING SYSTEM SHOULD BE APPROPRIATE TO THE PURPOSE OF GRADING.

- THE DATA ON WHICH GRADES ARE BASED OUGHT TO BE APPROPRIATE TO THE STATED PURPOSES AND OUGHT TO ACCURATELY REFLECT THE LEARNING OBJECTIVES.

The first principle emphasizes the fact that one set of grades cannot function as all things to all men and women. It is likely that different purposes will require different systems. Thus: in order to satisfy the student who wants to know how well he is progressing toward achieving the objectives in a course, a mastery model might be called for. If constraints on the university system force it to require that only a small percentage of students move on to the next year, then a norm-referenced system is appropriate.

An examination of purposes is likely to yield information about other issues related to grading. Particular aspects of the system might be affected for example: frequency of grading. Feedback to a student effectively motivates him if it occurs frequently. This purpose of grading requires numerous tests. Contrast it with a summative score needed once a semester by the registrar's office. It can be based on a single final test.

Looking at still another facet of the first principle: if mastery of a skill is a necessity, it would be inconsistent to have an A-F system of grading. (No one

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wants his appendix taken out by a surgeon who received a C- in Appendectomies!)

Consider then each purpose your present grading system is intended to serve and examine how appropriate it is to each.

The second principle presents several difficult problems.

For example, suppose that grades are to be used to certify that a student actually has reached the objectives of the course, or that they are to be used as feedback to the student indicating his progress toward those course goals. The grades then ought to be based on measures of student behaviours relevant to these goals. A close look at the examination, which will provide the data upon which the grade is based, may reveal trivial and irrelevant questions. Indeed, the teacher may remark that the examination certainly does not test what he intended to teach. Then the grade cannot properly be used as feedback or a sign of certification. It may motivate students to study but it is not a representation of the degree to which the student has acquired knowledge and skills relevant to the course objectives.

Pursuing this example a bit further, the teacher may suggest that if a student knows the trivial facts he probably has learned the more important points. This is certainly a legitimate hypothesis. But without supporting evidence (correlation of "trivial test items" with knowledge of important points as measured in another test), it is no more or less true than the negative hypothesis that there is no correlation between the two.

Stating specific purposes for grades almost naturally leads to an examination of the data base for these grades. It seems to us that a particular system of grading cannot really be evaluated unless these two principles are applied to it.

We are most interested in finding out your views on grading and hearing about unique methods of grading you may have devised for specific purposes. We plan to share such comments in a second newsletter on grading next fall.

The following references (all are available for reading in the CLD library) provide further information and discussion.

SUGGESTED READINGS

(all are available for reading in CLD library)

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CLD IS PREPARING AN EXTENSIVE ANNOTATED BIBLIOGRAPHY ON GRADING FOR THE USE OF OUR FACULTY. IT SHOULD BE READY BY SUMMER AND ITS AVAILABILITY WILL BE ANNOUNCED IN A FALL ISSUE OF LEARNING AND DEVELOPMENT.

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PSI, CONTINUED

THE OCTOBER, 1973 ISSUE OF LEARNING AND DEVELOPMENT WAS DEVOTED TO A BIBLIOGRAPHY OF MATERIALS ON THE PERSONALIZED SYSTEM OF INSTRUCTION. RECENTLY TWO IMPORTANT NEW ITEMS WERE PUBLISHED AND THOSE INTERESTED IN PSI SHOULD NOTE:

J. GILMOUR SHERMAN (ED.) PSI PERSONALIZED SYSTEM OF INSTRUCTION, 41 GERMINAL PAPERS

FRED S. KELLER AND J. GILMOUR SHERMAN, THE KELLER PLAN HANDBOOK, ESSAYS ON A PERSONALIZED SYSTEM OF INSTRUCTION.

BOTH BOOKS ARE PUBLISHED BY: W.A. BENJAMIN, INC:: MELNO PARK CALIFORNIA 1974. (CAN BE ORDERED FROM DON MILLS, ONTARIO OFFICE).

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ROBERT W HOWE
DIRECTOR
ERIC INFORMATION ANALYSIS CENTER
1460 WEST LANE AVE
COLUMBUS OHIO 43221